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ABSTRACT

This instructional handbook is one of series of ten packets designed to form a comprehensive course in nutrition for secondary students. This unit uses advertisements for products low in cholesterol as a link to a discussion of the nutrient, fat. It contains a page of teaching suggestions, a pre-test for the students, and factual nutrition information with examples of how this information can be used in daily living. A post-test and bibliography are included. (JD)

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NEW HORIZONS IN NUTRITION

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ADVERTISING

SP 016 761

NEW HORIZONS IN NUTRITION

AN ISSUE ORIENTED APPROACH

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PROGRAM INTRODUCTION

These ten instructional packets are designed to help you make the science of nutrition a fascinating, relevant topic of study for your students. The study of nutrition is the most basic of all skills as eating is something done by every student every day of his or her life. With the intrinsic relationship between proper nutrition and good health, it is vitally important that we help students to make intelligent decisions with regard to what they eat.

The ten packets which make up New Horizons in Nutrition can be taken together to form a comprehensive course in nutrition for secondary students. If you prefer, individual packets can be used when they're relevant to specific topics in health, home economics, science, or social studies classes. In addition, you can use the materials with entire classes or individual students can be given the packets for self-directed study.

Each packet contains a page of teaching suggestions which can easily be detached before the rest of the booklet is given to the students. The materials for the students include a pre-test, a selection which provides the students with factual information and examples of how this information can be utilized in everyday life, and a post test. Reading the selections and completing the evaluation devices is not enough to insure mastery of the concepts. We urge you to reinforce the packets by following through with related classroom activities. You'll find suggestions in the "Notes to the Teacher" or use them as a springboard to develop activities more ideally suited to the needs of your students. Finally, brief bibliographies are provided with each packet which lists related readings and audiovisual materials.

These suggested materials are not meant to be used as a research bibliography. Rather, they are sources of additional information which are likely to be of interest to secondary students.

The topics of the ten packets are:

1. *Advertising*
2. *Back to Basics*
3. *The Emotional Aspects of Nutrition*
4. *Food Faddism*
5. *Low Carbohydrate Diets*
6. *Nutrition and the Athlete*
7. *Nutrition: Yesterday, Today, and Tommorrow*
8. *Social Issues in Nutrition*
9. *Vegetarianism*
10. *Vitamin C and the Common Cold*

We sincerely hope these packets help you to make nutrition education an alive, relevant, and exciting topic of study for you and your students. The benefits for everyone are well worth your effort.

The Authors

TEACHING NOTES

INTRODUCTION

Advertising is a stimulus which almost constantly surrounds us. This packet uses advertisements for products low in cholesterol as a link to a discussion of the nutrient, fat.

OBJECTIVES

1. Students will identify the functions and sources of fats in the diet.
2. Students will differentiate between saturated and unsaturated fats.
3. Students will understand that a diet high in saturated fat may be a contributing factor to coronary-artery disease.

ACTIVITIES

1. Prepare a bulletin board entitled "Hidden Fats in Your Food". Illustrations of the following can be used: pies, cakes, eggs, milk, nuts, olives, cheese, and fried foods.
2. In home economics classes, obtain recipes for low-fat versions of favorite foods - such as lasagna, meat loaf, etc. - and prepare the foods for a taste-testing party.
3. Develop a skit to present to the class which depicts the variety of factors which can contribute to heart disease-diet, lack of exercise, overweight, smoking, stress, and heredity.

PRE TEST KEY

1. F	6. F
2. T	7. T
3. F	8. F
4. F	9. T
5. F	10. T

POST TEST KEY

1. Energy
2. Insulation and padding
3. Lubricant
4. T
5. T
6. F
7. T
8. Hypertension
9. Smoking
10. Obesity
    (Alternative answers: stress, lack of exercise, heredity, diet.)

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PRE TEST

TRUE OR FALSE

1. _____ Foods low in cholesterol are also always low in calories.

2. _____ Most Americans consume too much fat in their diet.

3. _____ Unsaturated fats are lower in calories than saturated fats.

4. _____ Diets high in cholesterol are the only cause of heart disease in America.

5. _____ In order to reduce the risk of heart attacks, it would be wise to eliminate fats from your diet.

6. _____ Carbohydrates are the nutrients which are the most concentrated source of calories in our diet.

7. _____ Examples of invisible fats in the diet would be egg yolks, cheese, and pies.

8. _____ Endorsement of a food product by a famous athlete is usually one good indication of the nutritional value of that food.

9. _____ Fats are one of the six essential nutrients.

10. _____ The fat soluble vitamins are A, D, E and K.

ADVERTISING

Advertising is a big business. Everyday we are bombarded with ads from all sides - TV, radio, newspaper, magazines, etc. And every day we are persuaded to buy a product. Often it is one we had never heard of, and one we had no intention of purchasing. Advertising creates wants and desires, and the only way to gain satisfaction is to purchase the product. So we buy!

APPEALS OF FOOD ADVERTISING

There are many different appeals that are used to persuade us to buy. Look through a magazine, or watch some of the TV ads. Who do advertisers use to sell a product? That's right - a gorgeous young model with a great figure. One who does not have to worry about gaining weight or losing unwanted pounds. The whole purpose of the ad is to get us to identify with her. And we do - at least in our dreams. Thus, the product is sold.

Maybe you recognize the person in the ad. More than likely it is a famous or a well-known celebrity, who is getting paid to push a certain product. Bruce Jenner endorses Wheaties. Dick Van Patton encourages us to buy a weight reduction product, PVM. Florence Henderson advocates the use of Tang, because American children will not get enough Vitamin C without this product. The list goes on. Once again we identify with the famous person. So, we buy another item!

Another sure appeal is that of time and convenience. Our lives are fast paced. We are always on the go. Time is at a premium. So we resort to convenience foods. The ads show the busy woman, running home after a day on the job, and her life becomes so easy and uncomplicated because she uses a certain product. Because of this product, she does not need help from any other member of the family. She comes rushing in the house, prepares dinner very quickly and the whole family is exclaiming over her ability to cope with all things. People want to be regarded as efficient, so they buy the product.

Through advertising we learn the latest fashions in food. We become part of the "in" group because we know what is in vogue. Everyone who is anyone uses this product. We want to be "in". We want to be thought of as "with it". So, once again we buy.

Some products are equated with love. The appeal is make to the mother of the family. If you love your family, you will buy this product for them. And what mother does not love her family! To prove her love, she buys the product.

And how many of us can pass up sweets? Have you ever noticed these ads? Some show a mother

and daughter baking a special delight for the family. Others portray "Daddy's Little Girl " saving one of her special brownies for her father. Sweets always seem to be the center of family life, love, and activity in the ads. Most families are striving for this image, and so the product is sold.

The cute appealing child is also used to sell an item, or the products are depicted in such an appetizing way that we cannot wait to buy the item.

The appeals are endless and we have all been manipulated without realizing it. Advertisers create the demand, and we buy accordingly.

ADS PROMOTING LOW FAT FOODS

One sure way of selling a food product today is to claim that the item is low in calories, or contain "no calories". The claim may be false, and research and statistics may prove that the claim is wrong, but it really helps to sell the item. Just look at the popularity of diet soda! Walk through the supermarket someday and notice the number of items that are low in calories or are calorie free. There is low calorie cheese, salad dressing, mayonnaise, bread, etc. Just about every food product that you can think of will have a low-calorie version.

Why are there so many low calorie foods? We are becoming extremely weight conscious. Everyone want to lose weight. So instead of cutting down on the amount of food that you eat, eat as much as you want but use the low calorie food. And just watch those pounds melt away! The appeal is universal, even though it is exaggerated.

And if a food has no cholesterol, it is a sure success! Cholesterol has become the fat product to watch. A food that has no cholesterol will sell immediately. How many people have purchased all the textured vegetable protein products that resemble meat - such as sausage, ham, bacon - just because the product is cholesterol free. They may not like the taste, but it is free of cholesterol.

Unfortunately, "cholesterol" and "low calorie" have become synonymous. People have the mistaken idea that a food that is low in cholesterol is low in calories. This is not true. The terms cannot be used interchangeably.

A food that is labeled low calorie means, that instead of the usual 9 kilocalories per gram of fat, you are receiving 5-6 kilocalories per gram of fat. In other words, a low calorie food supplies approximately 3-4 kilocalories less per gram than the regular fat food. For example, this can be accomplished in diet margarine by including water in the margarine mixture. Since water contributes no calories, a gram of

this diet margarine would be lower in energy value than a gram of regular margarine.

A food that is labeled low in cholesterol or cholesterol free means that it contains a small amount of cholesterol, or no cholesterol at all. It has nothing to do with the number of kilocalories the product contains. Cholesterol is a fat-related product and may be found in some of the so called "low calorie" foods, as well as the regular fat foods. (Cholesterol will be discussed in more detail in another section of this packet.)

FUNCTIONS OF FAT

The intake of fat is extremely high in the American diet. We should cut down on the amount and the type of fat that we eat. We cannot eliminate it. It is very important to remember that point: cut down on the amount of the nutrient, do not eliminate it. Fat performs many important functions:

1. ***Fat is a very concentrated source of energy.*** Every time we eat a gram of fat we get 9 kilocalaories. A gram of fat supplies 2¼ times as much energy as a gram of carbohydrate or a gram of protein. Fat is an important source of energy in the diet.

2. ***Fat serves as insulation and padding around all the cells of the body.*** It protects the cells from injury and shock. Fat also helps to reduce the loss of body heat in cold weather. However, too much fat can interfere with heat loss in warm weather.

3. ***Fat also serves as a lubricant within the body.*** They are especially helpful in lubricating the gastro-intestinal tract.

4. ***Fats serve as the transport agent for the fat-soluble vitamins A, D, E, and K.*** Solubility of a nutrient means that it can dissolve in a given substance. A fat soluble nutrient, such as vitamins A, D, E, and K, would dissolve in fat.

UTILIZATION OF FAT

Fat utilization depends upon the presence of carbohydrate. Fat is an important source of energy, but it can only supply that energy when there is enough carbohydrate present in the diet. When fat is broken down for energy, an intermediary product, known as a ***ketone body,*** forms. If there is sufficient carbohydrate, then these ketone bodies are further broken down to yield energy. When the amount of carbohydrate is decreased, then the ketone bodies cannot undergo the necessary breakdown. These bodies then accumulate in the blood stream and produce a condition known as ***ketosis.*** This is not a normal occurence, and it is not a safe state for the body. Ketosis is a frequent finding on the low carbohydrate reduction diets. It also occurs during starvation and in uncontrolled diabetes.

Another problem associated with ketosis is a disturbance of the acid-base balance of the body. The ketones are strong acids and require neutralization. So, they combine with all the available base in the

body. They are then excreted through the kidneys, but the alkali reserve is reduced. This may possibly produce a coma in some people. If carbohydrate is present is sufficient quantity, then ketosis will not occur.

SOURCES OF FAT

Fat is found in many different foods. Some foods are ***visible*** sources of fat, while others contain fat, but we are unaware of it. These foods are called the sources of ***invisible*** fat. Examples of sources of ***visible*** fat are oils, lard, hydrogenated shortening, butter, margarine, fat back of pork, bacon, and salad dressing. Sources of ***invisible*** fat are meat, fish, poultry, eggs, whole milk, cream, cheese and baked products.

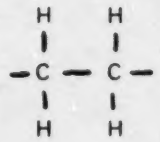
Some important changes have taken place in the consumption of fat in the United States. The total amount of fat available for consumption at the present time is approximately 42% of the total kilocalories ingested. This is entirely too high. The American Heart Association and nutritionists are recommending that we reduce our fat intake from 42% to 30 - 35% of the total kilocalories ingested; and, at the same time, watch the type of fat we are eating. Use lean meats, substitute fruits for rich desserts, and use poultry and fish more frequently.

FATTY ACIDS

Fats are composed of fatty acids and glycerol. Glycerol is an alcohol, and it is the same glycerol base attached to all fats. Fatty acids are the simplest form in which fats are used by the body. The fatty acids differ in composition, and they may be saturated or unsaturated.

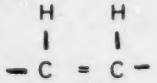
A ***saturated fatty acid*** is one in which each of the carbon atoms in the chain has two hydrogen atoms attached to it.

Example:



An ***unsaturated fatty acid*** is one in which a hydrogen atom is missing from each of two adjoining carbon atoms. Thus a double bond is created between the two carbon atoms.

Examples:



Saturated fats tend to be solid at room temperature, and they are found in animal foods. There are exceptions: coconut oil and palm oil are saturated fats, even though they come from a vegetable source. With regard to calories though, it is important to remember that fats are fats; and whether they are saturated or unsaturated, they yield 9 kilocalories per gram.

Unsaturated fats tend to be liquid (oils) at room temperature, and they are found in plant foods. The exception to this is noted above.

CHOLESTEROL

Cholesterol is a fat compound that is found in the liver, the adrenal glands, the white and gray matter of the brain, and the nerves. It is present in small amounts in almost all body tissues. Cholesterol is also made by the liver to meet the body's needs. Cholesterol is important because it is the provitamin form of D (cholesterol in the presence of sunlight is changed to vitamin D), it is necessary for the adreno-cortical hormones, sex hormones, and bile salts.

Only animal foods such as liver, eggyolk, whole milk, cream, butter, cheese and meat furnish cholesterol.

RELATIONSHIP OF FAT AND HEART DISEASE

Because fats are a concentrated source of energy, small amounts rapidly increase the caloric intake. If an individual does not moderate the amount of fat in the diet, he/she can easily exceed his/her requirement. Thus, he/she can become overweight.

This is related to one of the myths associated with the low carbohydrate diets. On such diets, all carbohydrate foods are forbidden or strictly limited; yet they only have half as many calories as fat (Carbohydrate = 4 kilocalories/gram; fat = 9 kilocalories/gram). In reality, many foods we think of as being high in carbohydrate really aren't that high in calories. For example, a baked potato may only have 90 calories. But it is the high-fat food, such as butter, sour cream, or gravy, that we put on the potato which make the calorie content soar.

There is some evidence to indicate that there is a correlation between high intake of saturated fats and cholesterol and cardiovascular disease. A high intake of saturated fats and cholesterol increase the concentration of blood cholesterol and other blood lipid factions. These elevated levels of blood lipids appear to be highly correlated with the incidence of cardiovascular diseases. Because of this, Americans are advised to modify their diets accordingly.

1. Include those basic foods that are essential for protein, minerals and vitamins.
2. Select fats for food preparation from oils as well as from solid fats.
3. Trim visible fat from meats; use lean meat, use more poultry (without the skin) and fish.
4. Substitute fruits and low calorie desserts for high fat desserts.
5. In choosing foods for additional kilocalories, place the emphasis on the maintenance of normal weight.

HEREDITY

OBESITY

STRESS

SMOKING

CHOLESTEROL

HOW MANY EXTRA STEPS DO YOU MAKE YOUR HEART CLIMB ????

Remember diet is an important factor in the development of heart disease. But there are other factors also. Hypertension, overweight, lack of exercise, heredity, and stress also affect the health of the heart.

CASE STUDY

ADVERTISING

Doug has been preoccupied lately worrying about his father. Mr. Stetson seemed to suddenly become very fatalistic about his future. Although he is only 47, he seems convinced that his life is almost over. He makes frequent references to the fact that his father and two of his brothers had suffered serious heart attacks before they were 50. Mr. Stetson is adamant that the same fate will befall him soon.

In an effort to ward off what he sees as the inevitable, Mr. Stetson has begun jogging and has tried to modify his diet. He is well aware of the ads on TV for low cholesterol products, so he has switched from butter to margarine and from fresh eggs to egg substitutes. He feels confident that he should soon see a dramatic weight loss.

Doug keeps urging his father to see their family physician for a complete check-up. The last time he had one was 2½ years ago and the doctor told him his blood pressure was elevated and he should lose weight. Whenever Doug brings up the subject of seeing a doctor, Mr. Stetson gets angry and tells Doug he doesn't need his son to tell him how to take care of himself.

QUESTIONS

1. What are the factors which might contribute to one's chances of coronary-artery disease? How many apply to Mr. Stetson?
2. Discuss the validity of Mr. Stetson's theory that by switching to some low-cholesterol food products he should experience a considerable weight loss.
3. What other foods which are high in cholesterol are likely to be eaten frequently by Mr. Stetson?
4. What are the functions of cholesterol in the human body?
5. Discuss whether or not it is a wise idea for Mr. Stetson to begin a rigorous exercise program without medical supervision.
6. If you were Doug, how would you handle your concern with your father's health and his opposition to your suggestions?

POST TEST

Name three functions of fat in the diet.

1.

2.

3.

4. _____ Saturated and unsaturated fats are identical in caloric value.

5. _____ Fats are the most concentrated source of energy.

6. _____ Invisible fats in foods are usually unsaturated fats.

7. _____ Eliminating all fats in the diet would not be advisable.

List factors which contribute to heart disease.

8.

9.

10.